A Query into the Randomness of the Complaints at World Trade Organization

Samplonius-Raut, Shilpa

Published in:
Online Proceedings

Publication date:
2014

Society of International Economic Law

Online Proceedings
Working Paper No. 2014/25

FOURTH BIENNIAL GLOBAL CONFERENCE
JULY 10 - 12, 2014
WORLD TRADE INSTITUTE
UNIVERSITY OF BERN

A QUERY INTO RANDOMNESS OF THE COMPLAINTS AT THE WORLD TRADE ORGANIZATION : A MATTER OF TRADE AGREEMENT BREACHES OR A SYSTEMATIC FINANCIAL AND ECONOMIC NECESSITY.

SHILPA SAMPLONIUS-RAUT

July 30, 2014

Published by the Society of International Economic Law

with the support of the University of Missouri-Kansas City (UMKC) School of Law

This paper can be downloaded free of charge from:
http://ssrn.com/link/SIEL-2014-Bern-Conference.html

C/O LAW DEPARTMENT
London School of Economics
Houghton Street
London
WC2A2AE

A query into the randomness of the complaints at World trade organization:

A matter of trade agreement breaches or a systematic financial and economic necessity.

Subfield of IEL: Trade & Not Theme

Abstract:
The explorative study by the author found out that the current literature still needs to explore the relationship between the number of complaints filed at the WTO and the financial and economic state of the WTO member countries. The explorative study categorized the WTO member countries into four categories based on their activeness at the WTO platform. The study provided conceptual models to show the theoretical possibility of causality between the complaints at the WTO and financial and economic variables at the macro level. It used a quantitative model to test the model and to find the extent of causality between various financial and economic factors and the aggregate level trade complaints for the most active nations at the WTO.

The World Trade organization, henceforth WTO, with the 159 member countries and 25 observers champions the cause of trade liberalization. It discourages unfair practices, such as export subsidies. The WTO also facilitates the necessary organizational infrastructure for the members who perceive that their trade partner countries do not keep to the trade agreement.

The study results show that the aggregate number of complaints lodged by the most active WTO member countries can be explained in eighty percent cases at 0.01 confidence level by the three variables: intellectual property rights(IPR), the net foreign direct investment and the percentage of population with structural unemployment..
The purpose of this paper is to extend this cross section analysis for the most inactive countries at the WTO and to check whether the extent of causality applies also to these countries. To support the cross section analysis a time series model is built in four countries, U.S.A, Canada, Japan, and the EU respectively.

The results show out that it is not just the cross section country analysis, which shows a very strong regression results with 0.85 regression coefficient but also for most active countries. The Gross Domestic product (GDP) shows in most cases a negative correlation with the aggregate number of complaints and the IPR positive relationship. The study fits a model with an inverted U relationship between GDP and the aggregate number of complaints, a double inverted U pattern in the net terms of trade and the aggregate number of complaints. The complaints at the WTO are not random, but can be correlated. The study concludes that this gives some evidence that ensuring justice for free trade at the Disupte Settlement Unit(DSU) is perhaps too idealistic because the DSU complaints are dependent on the macro economic factors.

The author is Ph.D. candidate in Rijksuniversity Groningen and a senior lecturer at Stenden university of applied sciences, The Netherlands.

Introduction

There is a consensus among the economists about the role of open economy in economic growth. The trade liberalization which results more in the export promotion strategy rather than import substitution strategy has proven a key to the economic growth. Free trade is an economic ideal where there are no trade barriers of any kind, monetary or non-monetary. Free trade has multiple arrays of effects; The trade relations create mutual interdependency. The interdependency helps to promote the understanding for each other. In the long term the free trade ensures the winning to all stakeholders. With this basic ideology and many other factors led to the foundation of the World Trade Organization in 1995. The member countries are expected to understand the principles of multilateral trade and adhere to the principles. The complete removal of the trade barriers is perhaps far-fetched, but the transparency about the barriers, which are allowed under the multilateral trade treaty, is desired and intended.

The trade justice forum of the WTO, the Dispute Settlement Unit (DSU) offers the opportunity to trade partners to lodge a complaint in pursuit of free trade. The lodging of a complaint at the WTO involves complex procedures to seek the trade justice at this WTO forum, with causation running one way at the international level. The membership of the WTO opens the door to the multilateral trade. A member country gets an opportunity to improve its intensive as well as extensive margins of trade. There could be some changes taking place in the traditional sector, giving its way to the newly founded sector. This could lead subsequently to the some effects in the industrial balance or in the employment pattern in the home country.

The complaints at the WTO are an innovative way of the WTO to ensure the free trade. It preserves the rights and obligations of Members under the CA under Art 3.2 DSU (WTO handbook on dispute settlement 2011) A WTO member country may lodge complaints against its trade partner WTO member country in case it perceives a breach of a multilateral agreement. An example of such trade complaint is a complaint by the Indonesia against the USA. When in 2009 USA signed a law prohibiting the production and sales of cigarettes with additives, Indonesia requested in 2010 a consultation with the USA challenging its ban on cigarettes with additives like cloves.The Indonesia perceived this breach of a multilateral trade agreement inconsistent with one of the articles and provisions of GATT, made use of the WTO platform.

The WTO has a very rigorous and complex procedure for filing the complaints. It requires data, information and involves paper work to prove that there is an alleged breach of a multilateral agreement. This also ensures that the complaints are independent of the perception of the trading partner and dependent factors.

The study proposes that the complaints are used as a tool to satisfy the unrest among a certain industrial lobby or the inhabitants or group of displaced labor to show the willingness to serve the own country. The financial and economic variables at the macro level are also indicators for the government, which they use to lodge a complaint. The Dispute settlement unit serves as a forum for the WTO members to file a complaint. The process is an outcome to ensure the free trade, that there are no obstacles. The trade indicators serve as an indicator
There are thirty countries, which have been complaining and have been respondents to the complaints by their trading partners. This small group of WTO active countries, which

consists of countries of various sizes and at different stages of economic growth, represents the different continent except the continent of Africa.
After building a conceptual model
There is ample theoretical guidance on normative questions whether and how much trade liberalization should be sought. The empirical interest in trade liberalization and protectionism is not new.
First, Grossman and Helpman (1995) uncovered a positive pattern of lobby support and protectionism in the United States of America, prompting researcher to explore whether the same was true of other sectors and other countries. Second, the trade justice forum of the WTO, the Dispute Settlement Unit (DSU) offers the opportunity to trade partners to lodge a complaint in pursuit of free trade. The lodging of a complaint at the WTO involves complex procedures to seek the trade justice at this WTO forum, with causation running one way at the international level. Third, a wave of recent empirical work has questioned traditional views on the protectionism challenging the notion that WTO membership is a prerequisite to the growth in trade (Rose 2004). This strand of literature has uncovered insignificant growth gains related to the decision of the membership of the WTO owing to the regional trade blocks. Thus, the current understanding of the WTO membership and trade growth nexus draws on several theoretical and empirical literatures. This paper's objective is to answer the basic question about the nexus between the WTO complaints and the financial and economic variables at the macro level. This objective is the first step to unravel the possibly protectionist impact of the WTO complaints on the complaining country

Based on the objective of the paper the question which is addressed in the paper
"What is the quantitative relationship between the number of complaints lodged at the DSU and the financial and economic variables at the macro level of the complaining countries``

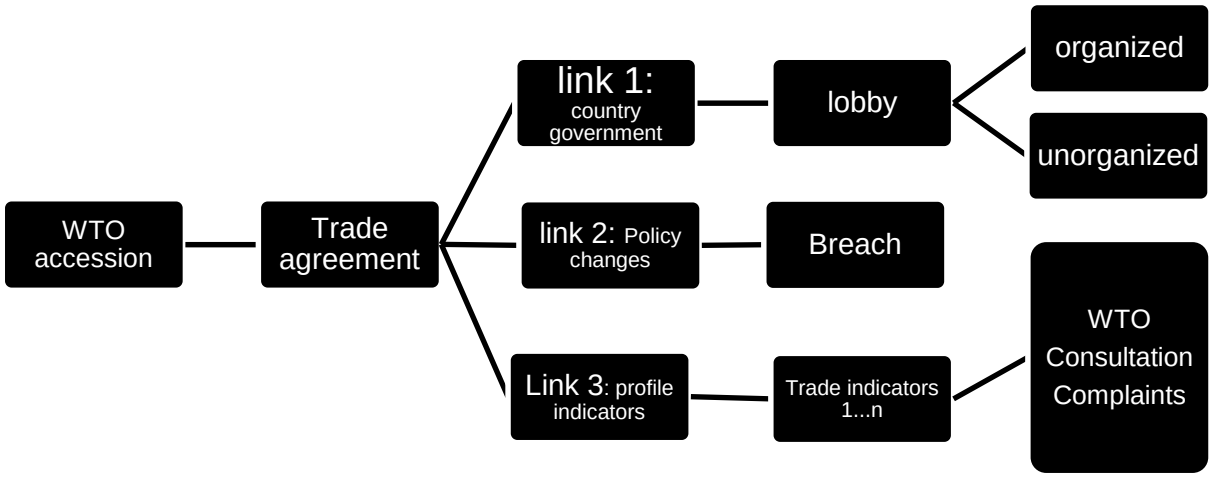
The conceptual framework integrates the links from the empirical literature in the field of political economy, the WTO mechanism and the impact of WTO on the trade.
It takes into account to model for WTO complaints and financial and economic variables at the macro level and the sales for protection theory with a WTO framework for trade justice.

Conceptual model and its explanation
The first link shows the influences on the determination of trade policy through the lobbies. The roots of this link lie among others in the theory formed in the paper 'Protection for sale' by Grossman and Helpman (1994). This theory has been proven empirically by among others Goldberg and Maggi (1999), Subramanian and Wei (1999), Gawande and Bandopadhyay (2000), and Eicher and Osang (2002). They have proven that endogenous factors like import demand elasticity, capitalist lobby activity and the import penetration ratio determine the trade policy. Matschke, Sherlund (2006) widened the scope of this model by showing that trade union activity and labour mobility also play important role in the determination of US trade policy. Ederington and Minier (2008) eased the original model by showing that when the political factors are taken into account in the government's objective function, the sign of the correlation between trade and import penetration is no longer conditional on the classification of industries into organized and unorganized. Gawande, Krishna and Olarreaga (2012) modified the original Grossman and Helpman model to account for cross-sectoral use of inputs with counter lobbying, which defined the importance of competing lobby forces in the determination of trade policy.
To sum up this first link; the trade policy is a function of many endogenous factors. The second link represents the WTO ideal devised to pursue an ideal of free trade. It shows the path that a WTO member country is expected to resort to in case of a perceived breach by

another WTO member country. The WTO recognizes that WTO complaint procedure is full of complex rules and procedures (Article 20 of WTO DSU). The Dispute settlement body (henceforth DSB) serves as a platform to ensure the cause of free trade.

The literature shows that this WTO ideal path not necessarily be the norm as Horn, Maggi and Staiger (2010) conclude that the trade contracts as such are incomplete documents and that the DSB has an important task of completing the incomplete agreements. The empirical evidence provided by Bagwell and Staiger (2011) shows that negotiated tariff levels at the WTO depend upon the pre-negotiated data related to tariff, import volume and prices and the trade elasticity. These studies also mention that the condition under which a country has been acceded to the WTO has varied across the time and so has the necessary changes been that a country needed to undergo in order to accede to the WTO. Moreover, the idea that formations of strategic trade barriers to retort a foreign protection is not new (Gawande, 1997). These studies provide some clue that the WTO member countries have unequal bargaining power. The link 3 in this conceptual model shows the WTO accession effects on the trade of a WTO member country. Rose (2004) questioned the impact of the WTO after he tested the assumption that the WTO increases trade and arrived to a negative conclusion. He upheld and defended his view subsequently in 2007 and 2010 with marginal concessions to the positive findings by others like Tomz, Goldstein and Rivers (2007). The controversy about the extent of actual impact and the direction of the impact owing to the WTO accession is beyond the scope of this study. Table 2 provides an overview of the studies conducted to assess and measure the impact of the WTO. These effects are visible to everyone, including the competing lobbyist and trade unions in a country when they surface up in the form of various trade profile indicators. These indicators are subject to changes in endogenous and exogenous factors. The WTO accession is one of most important exogenous factors. The trade policy, which is endogenously determined, influences trade profile indicators. They consist of a wide range of indicators ranging from tariffs for the most favoured nations to the current account. The study proposes that these trade profile indicators lead to a WTO member country to lodge a complaint at the WTO.

Conceptual model linking macro indicators and complaints at the DSU
Model 1



We start, in section 2, with Data- and methods. In section 3, we turn to the results obtained relationship between the WTO complaints and financial and economic variables at the macro level. Section 4 concludes with a discussion.

Section 2 Data and Methods:

The main question addressed in this section is whether the results of the cross- section analysis of WTO members belonging to the first quadrant hold true for the time series data. The purpose is to check whether the regression analysis shows the same results for the time series data for a few selected countries. These few selected countries form a subset of the countries belonging to the first quadrant in the classification table number 1 .

Table 1: classification of WTO member countries

	Complainant countries	**Non complainant countries**	**Total**
Respondent countries	Quadrant 1 Most active countries (32)	Quadrant 2 (21)	53
Non respondent countries	Quadrant 3 (12)	Quadrant 4 Most passive countries (99)	111
Total	44	120	164*

* As of December 2012, the total number is greater than 159 because there have been complaints lodged against several member countries of EU separately**.**

The use of time series analysis allows bringing in the aspect of time dynamics into th**e** static nature of the cross-sectional analysis, which is conducted for a point of time data as of December 2012. Whereas the time series analysis applied to individual countries covers the data period from 1995 to 2012.

A group of four countries is selected for the time series analysis, namely Canada, EU, Japan and the, USA. The EU is not a political unified country, but it negotiates, files complains and responds as one front at the DSU and can be for that reason taken as representing one political entity.The main reason for the selection of four leading countries is based on their image as the exponents of free trade and hence their expected higher propensity to make use of the dispute settlement forum of the WTO which serves as an instrument to ensure the adherence to free trade. Moreover, these countries have formed a united front in the past WTO negotiation rounds against the other WTO members, which favoured protectionist policies.

The countries have highest freedom trade as measured by the Heritage foundation in 2012, whereas the trade to GDP ration is not particularly very high and exceptional for this free trade exponents. The table 2 shows some key data

Table 2 Key data for selected countries.

Trade-GDP ratio	Net barter terms of trade	Trade freedom	No. of complaints filed by December 2012

Canada	61,6	122,4678452	88.3	33
EU	31,1	90,87043889	All the EU countries have a score of 85 and above	87
Japan	29,8	63,10453356	82.2	17
United States	28,5	100,8732795	86.8	105

Data records

The online available data on the WTO website for the complaints year wise and the sectoral share of in the GDP, Current account balance and other indicators is taken. The data related to the Intellectual property rights (IPR), the structural unemployment percentage is compiled from the online world bank data. The indicators such as the trade freedom is taken from the website of the Hertige foundation.

The records of a few variables that turned out to be significant in the cross- section analysis are not available from a singular reliable source such as the World Bank for all the individual countries for the same time period. One of the very variables with the high explanatory power, which lacked the records from 1995, is the IPR. The earliest data recorded available for an individual country dates to the year 2005. For this reason another series of the regressions were needed to carry out to facilitate the comparison with cross- section results.

The data relate to the thirty The WTO member country entities are taken. The list of countries is in the appendix 3 and the data for the time series for the four countries is in appendix 4. The EU consists of, as of today, twenty-eight countries, is taken as one entity. This is because it is under this denomination that they file a complaint at the DSU. This has some consequences on the data availability; the data related to EU on current account balance is not available. Some of the data like that for IPR is available only from 2005 onwards.

The reason for choosing these big four developed countries have often formed front during the WTO negotiations Canada, EU, Japan and the U.S.A. They are also active complainers. U.S.A. with 105 cases until the end of 2012 is the biggest complainer followed by the EU with 87 complaints, Canada by thirty-three complaints ranks third. Japan with 17 complaints is a just above the mean number of complaints, superseded by countries like India, Brazil and Mexico that have a larger number of complaints lodged than Japan.

Another variable which is not available for the same time period is The GDP / trade ratio lacks in the time series analysis. That is one of the reasons why GDP is used as the independent variable.

For all these variables, there is want of data from a singular reliable source for the period under consideration, from the year 1995 to 2005 which makes it infeasible to compare. The data for IPR is available for the sources from 2005, the GDP, import share is available from 1995.

The GDP is highly correlated with the IPR and it is used in the correlation and regression from the year 1995.

The Net terms of trade: The persistent correlation between GDP and aggregate number of complaints and the necessity to have a variable which could potential indicate the economic power and which directly could connect without being correlated with the GDP led to search or a trade related variable. That is the point when Net Terms of Trade come in .

Appendix 2. The Net barter terms of trade (NBTOT): S. Kasahara S. 2011 , UNCTAD

(1) P_x/P_m, Whre Px is the price of exports and Pm is the price of imports.

The net barter terms of trade, henceforth NTT is introduced in this analysis, but is not available at the EU level because it is calculated at the national level. The USA is the only country which has NTT records from 1995.

The table three shows the variables which are used in the analysis and their expected signs in the correlation.

Table 3 Economic variables and the expected sign

Variables	Expected sign
Share of Mfg in imports	-
Share of Mfg in exports	+
Structural unemployment	-
Current account balance	-
FDI %GDP	+
GDPPC	+
Trade to GDP ratio	+
IPR payments	+

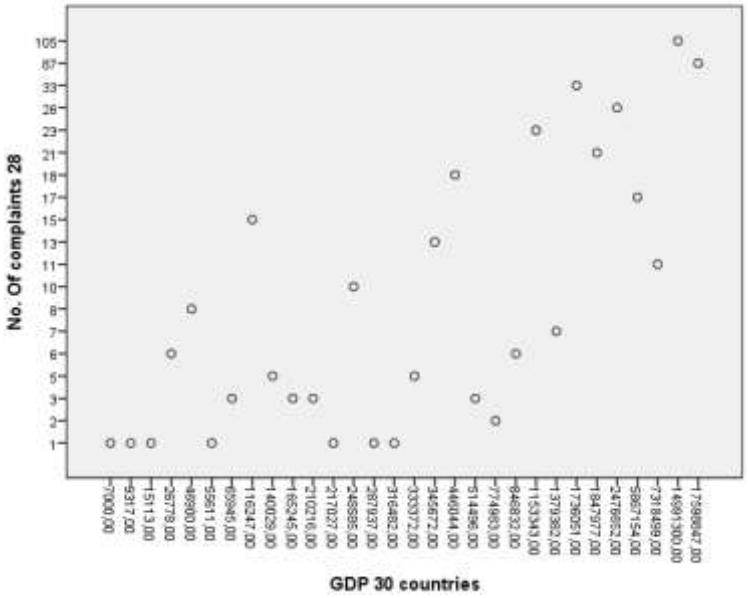
The basic political variables

After processing the data and the consistent correlation coefficient, one additional step was taken to link the findings to the year of election and the political parties in power. The source of the data are the respective websites of the political parties. For the reasons, which are already mentioned, also this analysis cannot be carried out for the EU data.

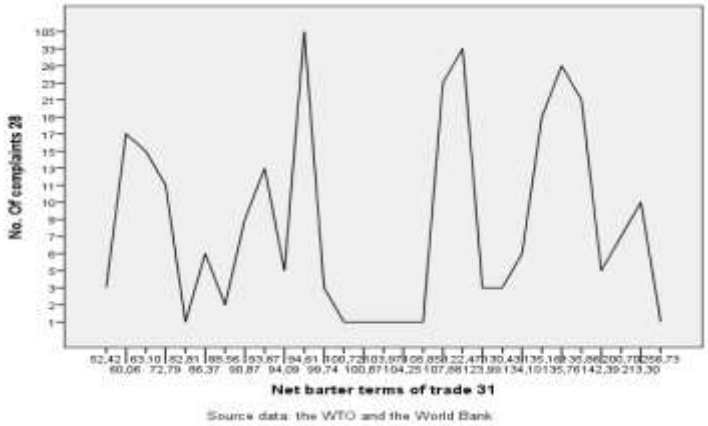
3. Results
3 A Key features of the data

1) Gross domestic product shows a positive correlation with the number of aggregate complaints for the data set of active WTO countries which have filed complaints and are respondents. Graph 1.
2) At the national level the four countries show a negative relationship with the number of yearly complaints against the GDPPC for that year. The graphs are shown in the country wise results
3) The Net terms of trade show after double ridged effect, an inverted double u pattern (graph 2). Indicating perhaps for every individual country an ideal range of net terms of trade when they are less inclined to file a complaint at the DSU. The four countries show the same inverted u pattern.

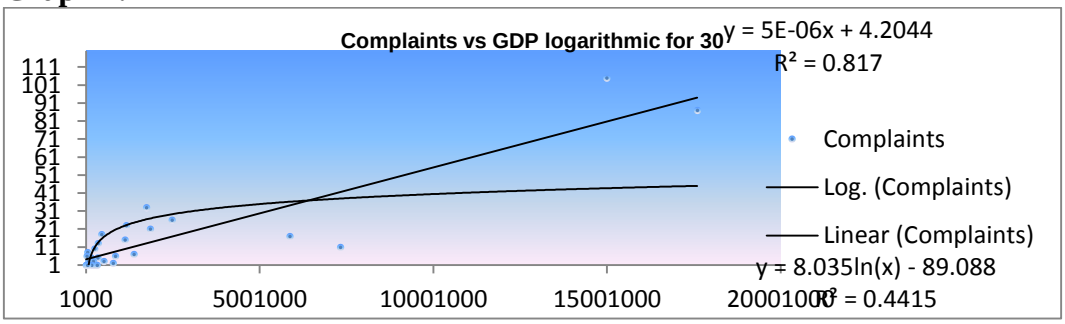
Graph 1 GDP vs number of aggregate complaints



Graph 2

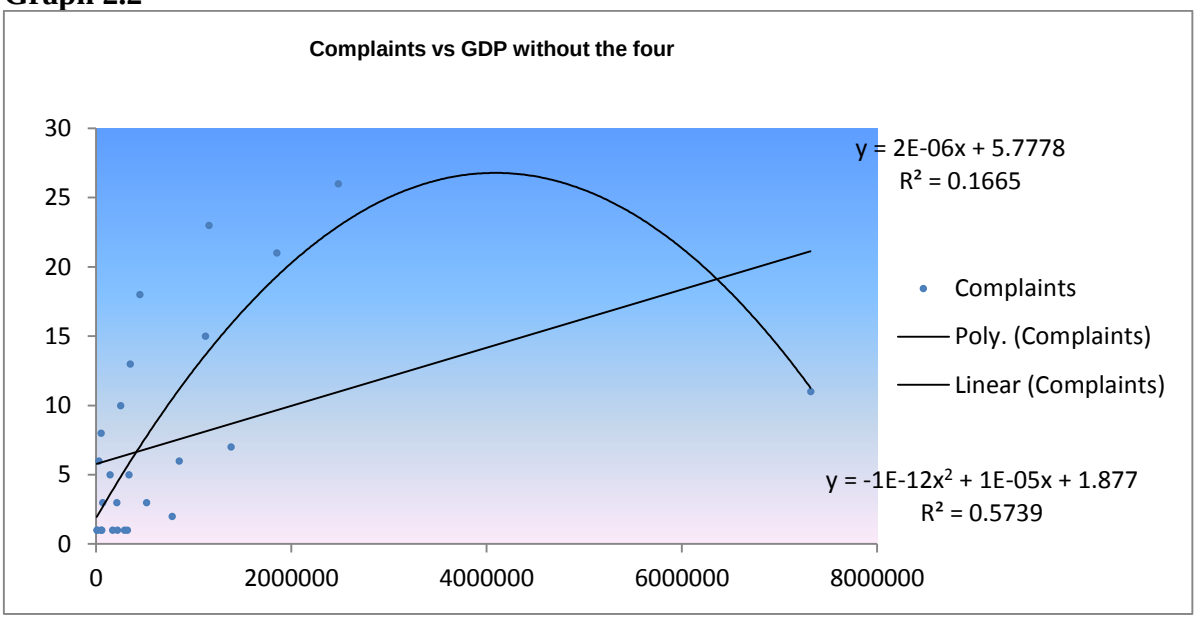


Graph 2.1



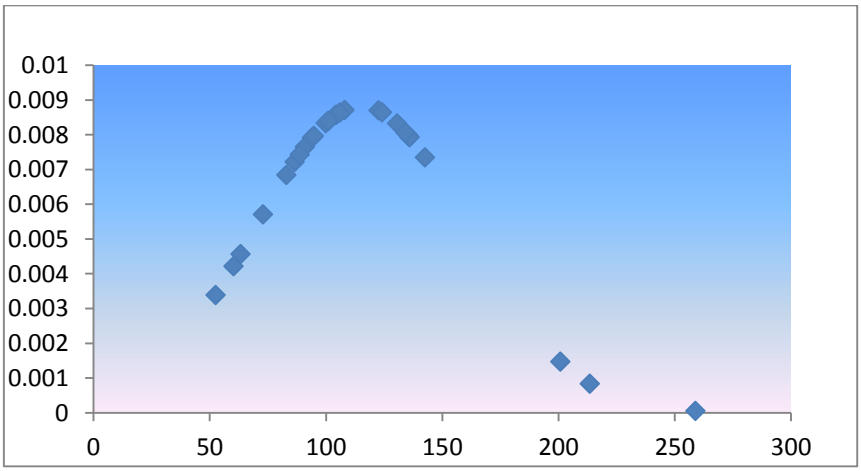
Taking logarithm vies a very high correlation coefficient and shows a pattern tending to inverted u.
After taking away the biggest complainer which may influence the results show s a clearly inverted U pattern.

Graph 2.2



After normalizing the data graph shows a double ridged pattern, the one likes most similar to the bar line like graph 2.

Graph 2.3



Results

In an earlier carried out explorative cross -section analysis, the results showed that, Trade to GDP ratio, IPR payments and manufacturing share in the import to be significant. Whereas IPR has a positive relationship with the number of complaints, the trade to GDP ratio and manufacturing share in the import has negative relationship, for a GDP / trade ratio it exhibits a weak negative relationship. To check whether these results apply we carried out first a simple correlation analysis and then regressed with the dependent variable of the number of complaints per ear with the other variables like structural unemployment, manufacturing share in imports and IPR payments.

This paragraph shows the results obtained the stepwise regression on cross- section data. Table 1 provides the summary statistics for the cross sectional analysis. The brackets after the variables show the coefficients and the significance level of the variables. This is used consistently throughout the paper. The results of the stepwise regression analysis on the cross- section data related to first quadrant countries shows that IPR payments (0.887; 0.001), the share of manufacturing in the import (-0.263; 0.004) and trade to GDP ratio (-0.178; 0.044) explain more than 90% of the variation in the dependent variable. These results are in appendix 1. This range of variables was used to to correlated with the time series for the four selected countries.

The table 1 shows the different variables which turn out significant in correlation analysis for the year 1995 to 2012.

Table 1: correlation results from 1995-2012

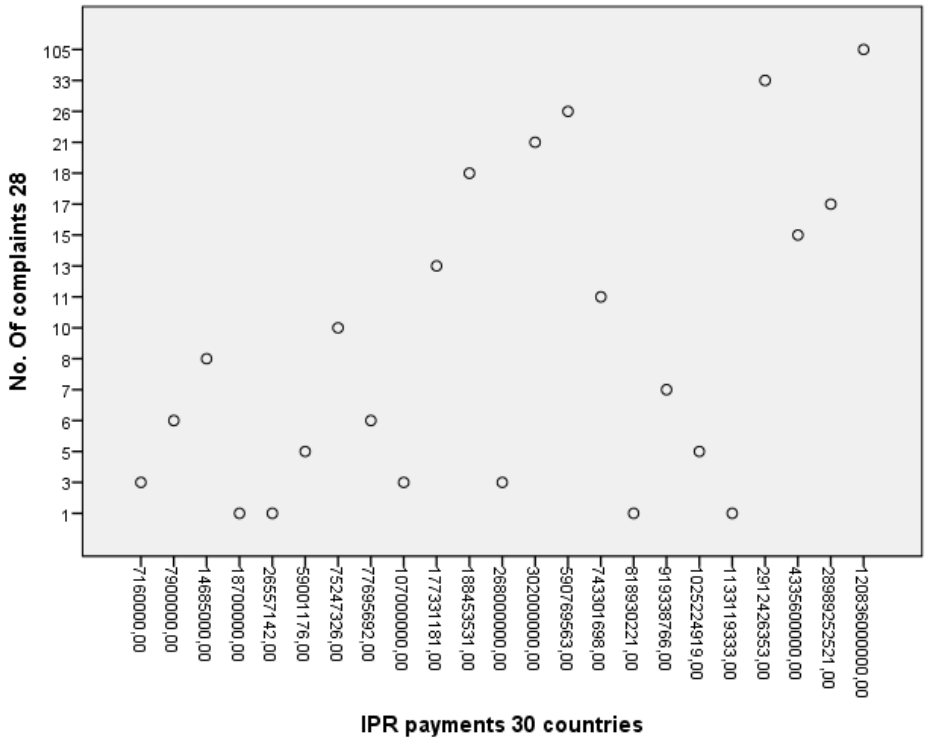
No. of complaints USA	No. of complaints USA	No. of complaints EU	No. of complaints EU	No. of complaints Canada	No. of complaints Canada	No. of complaints Japan	No. of complaints Japan
GDPPC USA	18 **-.721**^{**} .001	GDPPC EU	18 **-.516**[*] .028	GDPPC Canada	18 **-.537**[*] .021	GDPPC Japan	18 .241 .335
IPR payments	18 .314 .448	IPR payments EU	18 -.382 .351	IPR payments Canada	18 -.350 .396	IPR payments Japan	18 **.711**[*] .048
Struct.UN USA	8 -.338 .170	Struct.UN EU	8 **.476**[*] .046	Struct.UN Canada	8 .129 .610	IPR receipts Japan	8 **.727**[*] 0.041
Current account balance USA	18 .171 .686	EU import of goods and services	18 **-.509**[*] .031	Current account balance Canada	18 .547 .161	Current account balance Japan	18 -.528 .179
Imports of goods and services USA	8 **-.627**^{**} .005		18	Imports of goods and services Canada	8 .427 .077	Imports of goods and services Japan	8 -.126 .618
	18				18		18

The correlation analysis carried out for the time series analysis shows the following results. For the USA the data GDPPC along with the import of goods and services as a percentage of GDP showed high correlation at an acceptable level of significance. For the EU an additional variable, structural employment opportunities along with the GDPPC, the import of goods and services turned out to be significant. From the data for Canada only the GDPPC emerged out to be the most correlated factor. While in Japan the IPR payment as well as IPR receipts shoed positive correlation with the number of aggregate complaints for the period 1995−2012. The signs are consistent with the theoretical expectation and across the countries.

The results of the regression analysis, after processing these variables which turned out significant in correlation analysis are presented country wise in the following pages.

The first set of results pertains to Intellectual property right payments IPR. It shows a high positive relationship between the number of complaints and the IPR payments

Graph 3 shows the strong positive relationship between the IPR payments and the number of complaints lodged. 0,916**



Correlations

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,916[a]	,840	,832	8,872

a. Predictors: (Constant), IPR payments 30 countries

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	8647,706	1	8647,706	109,868	,000[b]
	Residual	1652,903	21	78,710		
	Total	10300,609	22			

a. Dependent Variable: No. Of complaints 28

b. Predictors: (Constant), IPR payments 30 countries

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	8,339	1,924		4,335	,000
	IPR payments 30 countries	7,774E-010	,000	,916	10,482	,000

a. Dependent Variable: No. Of complaints 28

3. 1 The USA.

Table 1 USA: 1995 model 1

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	24.813	4.713		5.265	.000
	GDPPC USA	.000	.000	-.721	-4.161	.001

a. Dependent Variable: No. of complaints USA

Table 2 USA: 1995 model 2

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.721[a]	.520	.490	3.476
2	.818[b]	.669	.625	2.978

a. Predictors: (Constant). GDPPC USA

b. Predictors: (Constant). GDPPC USA. X of goods and services as % of GDP

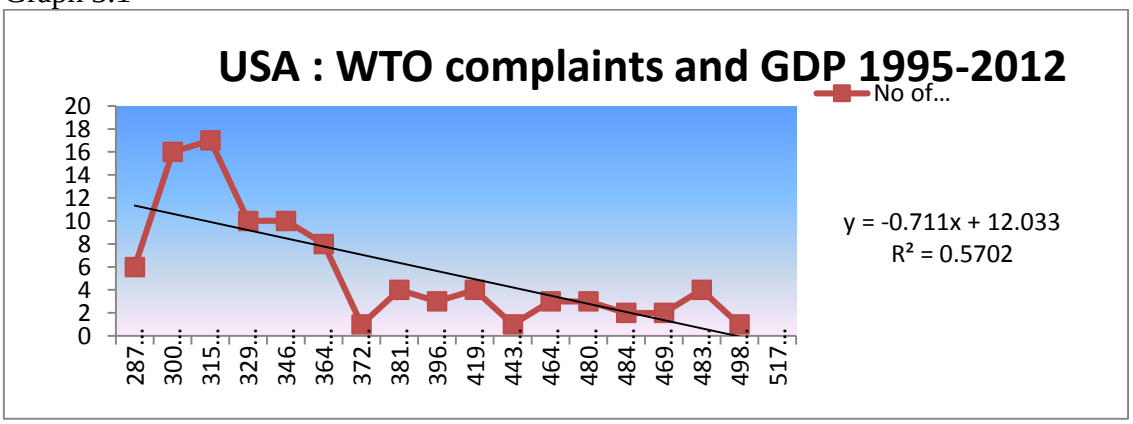
Table 3: USA: model from 2005

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-31.478	15.616		-2.016	.100
	X as % of GDP from 2005	-1.515	.903	-1.654	-1.679	.154
	GDPPC from 2005 USA	.001	.001	2.019	2.049	.096

a. Dependent Variable: No. of complaints from 2005 USA

Graph 3.1



EU

For the EU an additional variable, structural unemployment (0.476, 0.046.), along with the GDPPC (− 0.516, 0.028), the import of goods and services (−0. 509. 0.031) turned out to be significant. In stepwise regression GDPPc turned out significant.

Table 1 EU model for data From 1995

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	12.733	3.562		3.575	.003
	GDPPC EU	.000	.000	-.516	-2.409	.028

a. Dependent Variable: No. of complaints EU

Table 2 EU model for data from 2005

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,393[a]	,155	-,480	1,997

a. Predictors: (Constant), M of goods and services from 2005 EU, Struct UN from 2005 EU, IPR payments from 2005 EU

Table 3 EU model coefficients for data from 2005

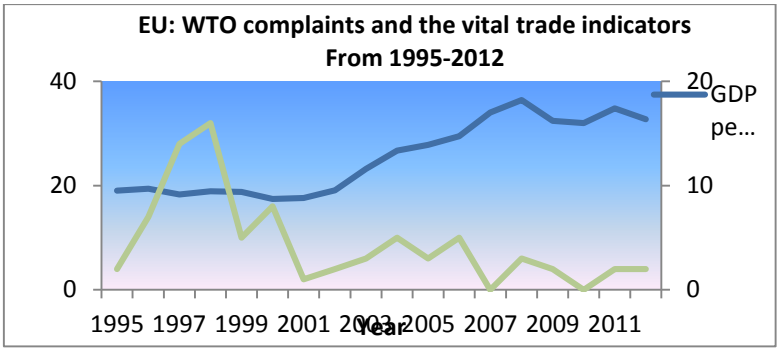
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3,001	13,350		,225	,833
	IPR payments from 2005 EU	-3,567E-11	,000	-,410	-,785	,477
	Struct UN from 2005 EU	,150	1,167	,063	,129	,904
	M of goods and services from 2005 EU	,042	,400	,058	,105	,921

a. Dependent Variable: No. of complaints from 2005 EU

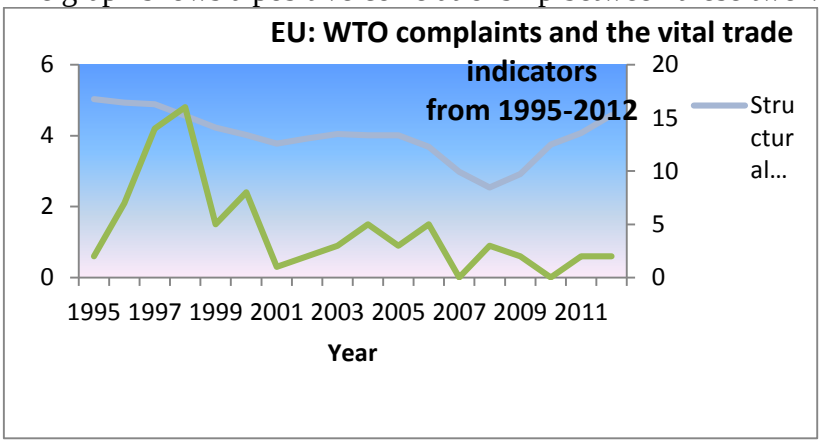
3.2.1 EU graph GDP vs no. of complaints

The graph shows a negative correlationship between these two variables**.**



3.2.2 EU graph Structural unemployment and no. of complaints

The graph shows a positive correlationship between these two variables



Canada

From the data pertaining to 1995 for Canada only the GDPPC emerged out to be the most correlated factor (− 0.537, 0.021). For Canada GDPPC and structural employment opportunities turned out to be carrying the explanatory power of the model with the respective coefficient and the level of significance can be seen at following tables.

Table 1 Canada for 1995

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.880	.965		4.020	.001
	GDPPC Canada	-7.154E-005	.000	-.537	-2.549	.021

a. Dependent Variable: No. of complaints Canada

Table 2 Canda for 2005

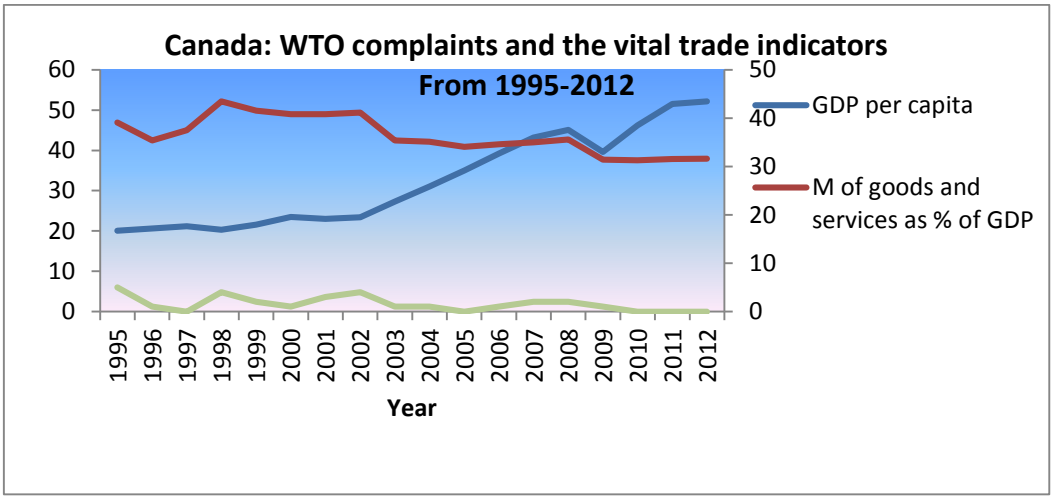
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.868	.539		5.320	.002
	Struct UN from 2005 Canada	-3.197	.771	-.861	-4.146	.006
2	(Constant)	.063	.826		.077	.942
	Struct UN from 2005 Canada	-4.583	.581	-1.234	-7.886	.001
	GDPPC from 2005 Canada	8.453E-005	.000	.572	3.657	.015

a. Dependent Variable: No. of complaints from 2005 Canada

3.3 Canada Graph

The graph shows negative relationship between GDPPC and the number of complaints and mild positive relationship between the percentage import of goods and services in the GDP and the number of complaints.



Japan

None of the factors used in the analysis provided a good fit for the Japan for the year 1995-2012. The results of the regression analysis are shown in the table the IPR payments (0.7116. 0.048) were the most correlated factor showing a positive correlation with the number of complaints lodged during the period 2005−2012.

Table 1 Japan: results for the data 2005

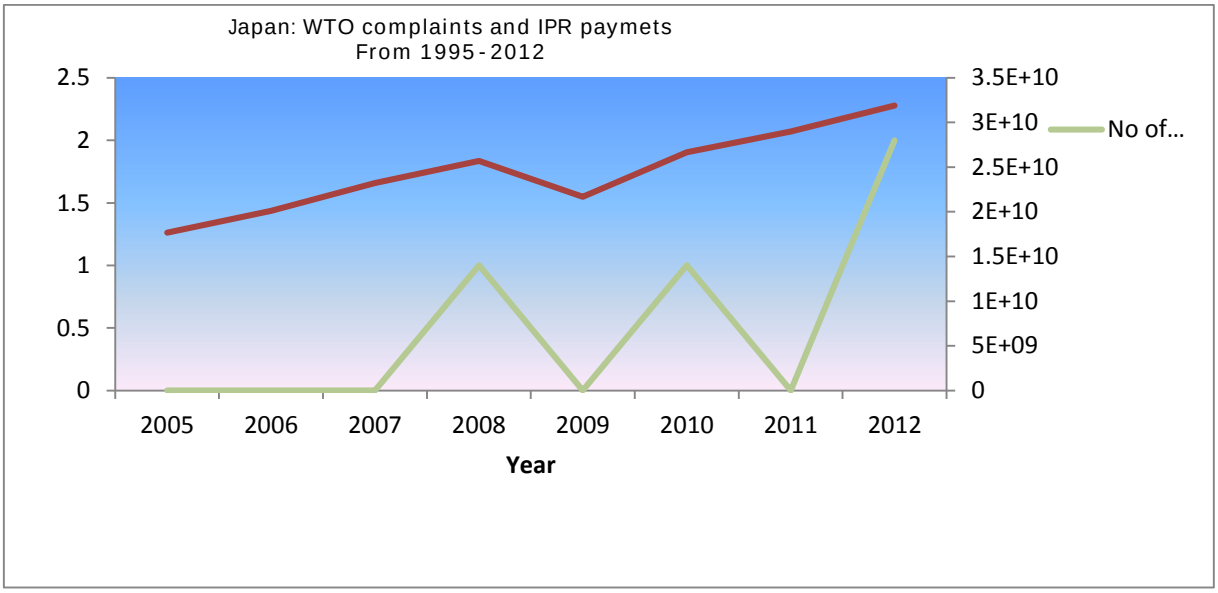
Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-4.567	2.058		-2.219	.068
	IPR payments from 2005 Japan	2.899E-010	.000	.711	2.474	.048

a. Dependent Variable: No. of complaints from 2005 Japan

3.4 Graph Japan

The graph shows a positive relationship between the IPR payments and number of complaints.



The cross sectional analysis showed a positive relationship with GDP 30 countries shows with an adjusted regression coefficient of 0.806, which is positive and the strength is considered as strong.
In a stepwise regression IPR turned out to be showing a high regression coefficient 0.85, with an addition of share of manufacturing in the import it increases to 0.88 and a subsequent addition of GDP/ trade ration is shows a sign of 0.90. Also, without the big complainents like the EU and USA the correlation between GDP and no of complaints remains positive for the cross sectional data, but shows a slight decrease in coefficient 0.408 instead of 0.434.
These results of cross- section are partly reflected in the time series results. The correlation coefficient is for the GDP and number of complaints is negative for the Candada, EU, USA and marginally positive for Japan.

The correlation analysis carried out for the time series analysis showed some interesting results. For the U.S.A. the gross domestic product per capita (GDPPC) along with the import of goods and services as a percentage of GDP showed high correlation at an acceptable level of significance at (−0, 721. 0.001) and (-0.627, 0.005) respectively. With an adjusted R square of 0.490 the GDPPC (−0. 721, 0.001) is able to explain the variation for the WTO complaints lodged by the USA.

The used data for the EU does not show significant results. This however does not mean that there is no correlation or association. The composition of the EU has changed over time, so the corresponding GDP, which is not just a result of growth but also accession of new countries. The GDP is calculated at the EU level, but the IPR payments which shows a negative relationship with which could be related to this. A variable which was taken into account at the beginning like current account balance could not be taken into the analysis. The trade/GDP ratio showed some marginal contribution could not be used either in time series analysis.
The IPR data available before 2005 from a singular source turned out to be problematic and the non availability the data at EU level gives a lot of zeros. It is not due to the statistical zeros, because they are there but not available.
While applying the correlation and regression for IPR variable, it turned out that for the EU and Canada. This variable showed a negative relationship with the complainant. While for

U.S. A and Japan it showed a positive sign as expected. For the correlation only Japan showed a moderately high correlation at 0.711 at 0.005 levels, which failed to yield significant good fit after processing for the regression.

For the EU and Canada. IPR payments showed a negative relationship with the number of aggregate complaints. While for U.S. A and Japan it showed a positive sign as expected. For the correlation only Japan showed a moderately high correlation at 0.711 at 0.005 levels, which failed to yield significant good fit after processing for the regression.

The USA. The EU and Canada show a correlation and dependence with GDPPC for Japan, there is a high correlation between IPR payment and GDPPC but GDPPc does not show correlation with the number of complaints lodged. The interdependence correlation coefficient among these three variables is not significant which implies that there is hardly any need to solve any problem of collinearity. The signs for all these three predictor variables are consistent with the expectation. The sign for IPR payments was expected to be positive due to its impact on the outflow of the money capital. The expected sign for the share of manufacturing imports as a percentage of GDP was expected to be negative. The justification for the negative sign is that the impact of the high percentage of manufacturing imports implies dependency in the secondary sector, usually an organized sector. On the similar lines, a higher trade to GDP ratio shows an open economy with higher depending on the trading partners. The strong coefficient and the higher level of significance favour the choice of IPR payments as the singular most important explanatory variable among the first quadrant countries
Add graph 1.
The graph one shows clearly a double ridge effect for the countries belonging to the quadrant one. It shows a recurrence of the inverted U pattern, indicating a nonlinear relationship between the net barter terms of trade and the complaints at the WTO. To be specific the relationship between the net barter terms of trade and the complaints at the WTO showed a polynomial relationship, but, because the yet to be estimated parameter is unknown in the regression function, it could be considered as linear. Accordingly. A trend line for linear relationship was estimated. The equation yielded proposes the value of $y = -0.0348x + 15.998$. The constant, the y intercept, is negative and marginal.

For EU a similar equation failed to yield owing to the issues related to the data comparison. The EU represents, negotiates and files complaint on behalf of all its member states, but the net barter terms of trade are available only at the member state level. This would imply the same number of EU complaints at the WTO level to be plotted against the net barter terms of trade for each of the twenty-eight current member states. To complicate the matter, the EU membership has seen an increasing trend over the years while EU representation at the WTO has varied over the time. This does not facilitate the sound comparison.
The lack of uniformity in terms of the number of years for which the data is available makes the comparison more complicated.

Double ridged effect

The omission of the big four Canada, EU, Japan and USA from cross section an analysis shows a marginal reduction in the correlation coefficient between GDP and aggregate number of complaint and it is good and stronger for nonlinear function. There are many examples in economics which are nonlinear. The persistence of this pattern led to a search of a variable which is related to trade and show some potential indication of the economic power. For this

set of countries the NTT is not correlated to the GDP nor there is a significant linear correlation with the number of complaints.
The double ridged effect observed in the cross sectional sample holds also to the three individual members.The expectation that the economically developed countries like Canada. Japan and the USA should find themselves on the right ridge of the diagram 1 owing to better net terms of trade is hardly observable in the data. The countries like Brazil and India are on the right side of the ridge showing a much lesser oscillation than Canada. Japan and the US.A. These three economically developed countries show high variation in the net barter terms of trade with a difference being more than forty points during the duration of seven years.

To answer the main question, based on the results, that there is hardly any reason to believe that the complaints at the DSU are random. The DSU procedure has been considered as an innovative measure. The results show that there is some systematic pattern to believe that there could be some macroeconomic factors, which may be a culmination of various endogenous and exogenous factors that could condition the initial steps of the national government to file the complaints at the DSU despite the complicated and complex procedures to discourage the ungrounded complaints.

At the cross sectional level, there is a positive relationship between the GDP and the number of aggregate complaints. The larger countries trade more, the richer countries trade more that could probably provide them more threats to the exposure of the trade barriers. At the national level, whether a very weak correlation there is a negative correction between the number of aggregate complaints lodged and the GDP 2012. These complaining countries are not likely to complain when their GDP is lower.
The IPR payments which n stepwise and enter method is a good indicator, highly significant in cross -section analysis. The data is not available for a long time, which makes it less meaningful.

Link 1 and link 3 USA

The results are in appendix IV.

There are two political variables include on the election year and the party in power. The party is power is highly negatively correlated with IPR payments 0.805 at the 0.05 % level. If this IPR is taken as dependent variable the adjusted coefficient is 0.589 is significant.

For Japan GDPPC is correlated with party in power with a 0.558 correlation coefficient the adjusted regression coefficient is mildly with 0.268.
Canada GDPPC is highly correlated with 0.909 and with high adjusted regression coefficient 0.8. These results are high, but should be cautiously interpreted. The trend for GDPPC has been in general to increase and with almost with the exception of three years there has been one party in power in Jpana. For Canada after years among two parties are almost equally divided for the period under consideration.
The political party variable in combination with the macro economic indicators can explain the shows some significance for the complaints. These results are also found in Appendix IV.

Summary of the results

On the basis of the quantitative analysis the summarized as follows:

- A nonlinear, an inverted U relationship can be established between the GDP and the number of aggregate complaints for the year 2012 for the most active WTO member countries.
- At cross sectional level, there is a positive relationship between the aggregate number of complaints and the GDP
- At cross sectional level, there is a positive relationship between the aggregate number of complaints and the IPR payments.
- At cross sectional level, the NTT and the aggregate number of complaints show a double ridged pattern, a double inverted U pattern, which also applies to the time series analysis indicating an ideal NTT at which countries do not file a complaint.
- For the USA, Canada and EU there is a negative correlation between a number of complaints and the GDP.
- For Canada structural unemployment and for Japan IPR payments turn out to be very important explaining factors.
- The quantitative analysis shows that political party in power could have some direct role in the level of IPR, GDP and indirect role in the complaints at the DSU.

It can be concluded that the complaints at the DSU have quantitatively provable dependence on the trade profile indicators. The complaints at the DSU are no independent of the endogenous factors of a country. This could be probably be due tot the barrier effect of the DSU complaints. It is too premature at this stage to conclude that because the research is still going on.

Discussion:
This study is the first step in the research and research will continue to probe into the protectionist effect on the complaining countries and the regional variations in the pattern of use of the DSU procedure.
This study is based on the macro factors, using aggregates and that is one of the major limitation of the paper, it looks at the problematic form purely quantitative perspective.
The results in this paper provide fertile ground for more questions than it answers.
The analysis is limited to the macroeconomic indicators, though it does recognize, but does not include in its analysis the political dynamics, as can be seen from the conceptual model. That is exactly the factors and process which the WTO and DSU did not wish to take into account, the aim being providing trade justice by making the trade accessible to all the countries, whether rich or poor. It is the pure breach of trade agreement that should lead to the complaint at the DSU. The conceptual model shows that there is a link possible to expect it otherwise. Do the WTO complaints have protectionist impact. The process, effects and consequences after a complaint has been filed at the WTO. Does it halt the trade with immediate effect until the matter is settled?

Key features of the proposed conceptual model is the connection with the active lobbyist network and the implicit role of the government's two-dimensional conflicting objectives.

The two-dimensional conflicting objectives, which imply an optimal policy, which intends to equilibrate with its own political objective of retaining the power and that of the government, in its role of representatives of the citizens, to optimize the welfare. The national governments file the complaints, but they are related to not to a firm level, though an individual firm might get affected by it , related to a product and therefore have bearing upon at sector level.

The results of the analysis lead us to believe that the approach adopted for the analysis could only be used for exploratory analysis and not to obtain an impact of the DSU procedure that a respondent country may or may not face. The main problem is that an analysis that requires information on the impact of the DSU complaint is not going to be very precise regarding specific details of the steps in the DSU procedure. This means that it will be difficult to link the steps in DSU procedure to specific effects in the complaining country. On the other hand, the analysis procedure was found to be useful in determining the response of a respondent country to the WTO complaints their relative importance and potential solution.
It it feasible that in many cases. The poor understanding of trade agreement that is perceived as NTB in combination with the weak understanding of the multi-lateral trade agreement resulted in a complaint at the DSU.

As revealed by a casual examination of the seventeen years' time series indicates, the viewpoint of many analysts has been and remains an event-based approach in which one attempts to rationalize a given trade liberalization policy by relating it to a national or international economic or political event. From this point of view, one could infer that, since the different WTO complaint are not necessarily influenced by the same events or information sets, the WTO complaints obtained from several countries for the different years will exhibit different features.
The industries at home are either organized or unorganized. The industries organized or otherwise, may or may not perceive the alleged long-term benefits from multilateral trade. It could put pressure on the government by providing political support or providing election contributions. The displaced labors might organize protests and create social unrest in the concerned area. The threatened displacement of the villagers, residents or ground, farms could also be a part of such consequences. The non-ruling parties might fuel up the protest against the ruling party's decisions to gain its political share in the winning.

The government of the ruling parties needs to keep its status and want to retain its power. The authorities might prone to take decisions for the short-term political gains in favour of the alleged long-term economic free trade gains. At the same time, the commitments to the WTO are the signals to the business world about the intention and willingness of the country for the principles of multilateral trade. The reversal in the short term to the WTO commitments is an exception. The government faces a dilemma and in order to prove its commitment to the stakeholders who are directly or indirectly affected by such multilateral trade effect, to win the political arena may take certain political steps in the international trade arena. This step could be to complain at the WTO.

Several areas deserve further investigation the research is ongoing and this paper covers only a part of it. To the extent that the WTO promotes free trade by requiring most favoured nation MFN'and reduction of non tariff trade barriers NTB it would be helpful to have a better understanding of the impact of MFN itself. As it turns out, some countries extend MFN more broadly and reduce NTB extensively expecting it from the other countries to do the same. At

the moment, no comprehensive source of NTB data exists about who grants a reduction of NTB to whom. The collection of such data would represent a major contribution to our understanding of WTO complaints. Such work would also shed light on countries and their differential treatment of granting a reduction of NTB.

References

1) Bagwell K. and Staiger R.W. (2011). What do trade negotiators negotiate about? Empirical evidence from the world trade organization. American Economic Review 101, 1238-1273.
2) Balding C. (2011) Joining the World Trade Organization: What is the impact? Review of International Economics 18(1) 193-206.
3) Dutt P., Mihov I., Van Zandt T. (2013). The effect of WTO on the extensive and the intensive margins of trade. 91, 204-219, Journal of International Economics.
4) Ederington J. and Minier J. (2008). Reconsidering the empirical evidence on the Grossman-Helpman model of endogenous protection.
5) Eicher T. and Osang T. (20002). Protection for sale: An empirical investigation: comment. American Economic review, 92(3), 1703-1710.
6) Gawande K. (1997). A test of a theory of strategically retaliatory trade barriers. Southern Economic Journal 64(2) 425-449.
7) Gawande K. and Bandopadhyay U. (2000). Is protection for sale? Evidence on the Grossman-Helpman theory of endogenous protection. The Review of Economics and Statistics, 82(1), 139-152.
8) Gawande K., Krishna P. and Olarreaga M., (2012). Lobbying competition over trade policy. International Economic Review, 53(1), 115-132.
9) Grant J.H. and Boys K.A. (2012). Agricultural Trade and the GATT/WTO: Does Membership Make a Difference? American journal of agricultural economics, 94(1), 1-24.
10) Goldberg P. and Maggi G. (1999). Protection for sale: An empirical investigation. American Economic Review, 89(5), 1135-1151.
11) Grossman G.M. and Helpman E. (1994). Protection For sale. American Economic review, 84(4), 833-850.
12) Horn H., Maggi G. and Staiger R.W. (2010). Trade agreements as endogenously incomplete contracts. American Economic Review 100:1, 394-419.
13) Felbermayr G. and Kohler W. (2010). Modelling the extensive margin of world trade: new evidence on GATT and WTO membership, The world economy.
14) Matschke X. and Sherlund S.M. (2006). Do labour issues matter in the determination of U.S. Trade policy? An empirical investigation. The American Economic review 96(1).
15) Rose A.K. (2004). Do we really know that the WTO increases trade? American Economic Review, 94(1) 98-114.
16) Rose A.K. (2007). Do we really know that the WTO increases trade? Reply. American Economic Review 2019-2025.
17) Subramanian A. and Wei S.J. (2007). "The WTO promotes trade, strongly but unevenly," Journal of International Economics, Elsevier, vol. 72(1), pages 151-175
18) Tang M.K. and Wei S.J. (2009). The value of making commitments externally: Evidence from WTO accession. Journal of international Economics, 78 216-219.
19) Tomz M., Goldstein J.L., Rivers D. (2007). Do we really know that the WTO increases Trade? Comment. The American Economic Review, 97(5), 2005-2018.
20) WTO documents UNDERSTANDING THE WTO: THE AGREEMENTS retrieved from http://www.wto.org/english/thewto_e/whatis_e/tif_e/agrm1_e.htm

Appendix 1

The cross- section factors did not turn out to be relevant equally for all the countries and to the same extent.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.926[a]	.857	.849	8.941
2	.947[b]	.896	.884	7.839
3	.960[c]	.922	.906	7.042

a. Predictors: (Constant). IPR payments 30 countries

b. Predictors: (Constant). IPR payments 30 countries. Mfg M share in 30 countries

c. Predictors: (Constant). IPR payments 30 countries. Mfg M share in 30 countries. GDP/Trade ratio

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8139.737	1	8139.737	101.829	.000[b]
	Residual	1358.895	17	79.935		
	Total	9498.632	18			
2	Regression	8515.422	2	4257.711	69.287	.000[c]
	Residual	983.209	16	61.451		
	Total	9498.632	18			
3	Regression	8754.751	3	2918.250	58.845	.000[d]
	Residual	743.880	15	49.592		
	Total	9498.632	18			

a. Dependent Variable: No. Of complaints 28

b. Predictors: (Constant). IPR payments 30 countries

c. Predictors: (Constant). IPR payments 30 countries. Mfg M share in 30 countries

d. Predictors: (Constant). IPR payments 30 countries. Mfg M share in 30 countries. GDP/Trade ratio

Coefficients[a]

	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	T	Sig.

1	(Constant)	10.115	2.149		4.707	.000
	IPR payments 30 countries	7.599E-10	.000	.926	10.091	.000
2	(Constant)	16.558	3.216		5.149	.000
	IPR payments 30 countries	7.661E-10	.000	.933	11.595	.000
	Mfg M share in 30 countries	-.570	.230	-.199	-2.473	.025
3	(Constant)	25.461	4.977		5.116	.000
	IPR payments 30 countries	7.284E-10	.000	.887	11.788	.000
	Mfg M share in 30 countries	-.751	.223	-.263	-3.371	.004
	GDP/Trade ratio	-.093	.042	-.178	-2.197	.044

The regression results are

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	,979[a]	,958	,950	5,043

a. Predictors: (Constant), FDI %GDP, structural unProblem, IPR payment

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9744,962	3	3248,321	127,746	,000[b]
	Residual	432,276	17	25,428		
	Total	10177,238	20			

a. Dependent Variable: Complaints by

b. Predictors: (Constant), FDI %GDP, structural unProblem, IPR payment

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	5,924	1,875		3,160	,006
	IPR payment	1,916E-009	,000	,735	3,883	,001
	structural unProblem	-,323	,148	-,231	-2,189	,043
	FDI %GDP	,000	,000	,316	1,818	,087

a. Dependent Variable: Complaints by

Appendix 2

Correlations

Notes

Output Created		03-JUL-2014 11:10:15
Comments		
Input	Data	C:\Shilpa Delen\Shilpa 2014 Feb kopie\SIEL 2014\WTO data 31 most active countries April 2014.sav
	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	45
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		CORRELATIONS /VARIABLES=VAR00072 VAR00069 VAR00029 VAR00031 /PRINT=TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00,00
	Elapsed Time	00:00:00,01

[DataSet1] C:\Shilpa Delen\Shilpa 2014 Feb kopie\SIEL 2014\WTO data 31 most active countries April 2014.sav

Correlations

		Net barter terms of trade 31	Trade to GDP ratio complainants	GDP 30 countries
Net barter terms of trade 31	Pearson Correlation	1	,186	-,174
	Sig. (2-tailed)		,334	,366
	N	29	29	29
Trade to GDP ratio complainants	Pearson Correlation	,186	1	,371*
	Sig. (2-tailed)	,334		,044
	N	29	30	30
GDP 30 countries	Pearson Correlation	-,174	,371*	1
	Sig. (2-tailed)	,366	,044	
	N	29	30	30
No. Of complaints 28	Pearson Correlation	-,078	,323	,901**
	Sig. (2-tailed)	,686	,082	,000
	N	29	30	30

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		Net barter terms of trade 31	Trade to GDP ratio complainants	GDP 30 countries	No. Of complaints 28
Net barter terms of trade 31	Pearson Correlation	1	,186	-,174	-,078
	Sig. (2-tailed)		,334	,366	,686
	N	29	29	29	29
Trade to GDP ratio complainants	Pearson Correlation	,186	1	,371*	,323
	Sig. (2-tailed)	,334		,044	,082
	N	29	30	30	30
GDP 30 countries	Pearson Correlation	-,174	,371*	1	,901**
	Sig. (2-tailed)	,366	,044		,000
	N	29	30	30	30
No. Of complaints 28	Pearson Correlation	-,078	,323	,901**	1
	Sig. (2-tailed)	,686	,082	,000	
	N	29	30	30	30

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Net barter terms of trade 31	Trade to GDP ratio complainants	GDP 30 countries	No. Of complaints 28
1	,186	-,174	-,078
	,334	,366	,686
29	29	29	29
,186	1	,371*	,323
,334		,044	,082
29	30	30	30
-,174	,371*	1	,901**
,366	,044		,000
29	30	30	30
-,078	,323	,901**	1
,686	,082	,000	
29	30	30	30

Correlations

		GDP 30 countries	No. Of complaints 28
GDP 30 countries	Pearson Correlation	1	.901**
	Sig. (2-tailed)		.000
	N	30	30
No. Of complaints 28	Pearson Correlation	.901**	1
	Sig. (2-tailed)	.000	

N	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.901[a]	.813	.806	10.498

a. Predictors: (Constant). GDP 30 countries

Correlations

		GDP 30 countries	No. Of complaints 28
GDP 30 countries	Pearson Correlation	1	.901**
	Sig. (2-tailed)		.000
	N	30	30
No. Of complaints 28	Pearson Correlation	.901**	1
	Sig. (2-tailed)	.000	
	N	30	30

**. Correlation is significant at the 0.01 level (2-tailed).

Regression

[DataSet1] C:\Shilpa Delen\Shilpa 2014 Feb kopie\SIEL 2014\WTO data 31 most active countries April 2014.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	GDP 30 countries[b]	.	Enter

a. Dependent Variable: No. Of complaints 28

b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.901[a]	.813	.806	10.498

a. Predictors: (Constant). GDP 30 countries

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13387.551	1	13387.551	121.476	.000[b]
	Residual	3085.815	28	110.208		
	Total	16473.367	29			

a. Dependent Variable: No. Of complaints 28

b. Predictors: (Constant). GDP 30 countries

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.517	2.123		2.128	.042
	GDP 30 countries	5.062E-006	.000	.901	11.022	.000

a. Dependent Variable: No. Of complaints 28

Regression

```
[DataSet1] C:\Shilpa Delen\Shilpa 2014 Feb kopie\SIEL 2014\WTO data 31
```

Correlations

		GDP 30 countries	IPR payments 30 countries
GDP 30 countries	Pearson Correlation	1	.888**
	Sig. (2-tailed)		.000
	N	30	23
IPR payments 30 countries	Pearson Correlation	.888**	1
	Sig. (2-tailed)	.000	
	N	23	23

**. Correlation is significant at the 0.01 level (2-tailed).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.916[a]	.840	.832	8.872

a. Predictors: (Constant). IPR payments 30 countries

Appendix 3: The quadrant one countries

1	Argentina
2	Australia
3	Brazil
4	Canada
5	Chile
6	China
7	Colombia
8	Czech republic
9	Dominican Republic
10	Ecuador
11	EU
12	Gautemala
13	Hungary
14	India
15	Indonesia
16	Japan
17	Korea, Republic of
18	Malaysia
19	Mexico
20	Moldova
21	Nicaragua
22	Pakistan
23	Panama
24	Poland
25	Thailand
26	Turkey
27	Ukraine
28	United States
29	Uruguay
30	Venezuela, Bolivarian Republic of